

Bibliographic identification

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Abstract

The purpose of this thesis was to investigate influence of the position of the lower limbs on selected thigh muscles activity. Special attention was paid to activity of mm.vasti. The first part summarizes the literature findings. Based on these theoretical findings, the research plan and hypotheses were subsequently prepared. For the purpose of this work, method of surface electromyography was chosen. The research was primarily realized in a group of 14 healthy individuals. Muscle activity was measured during selected physical activities in both open and closed kinematic chains. We were interested in how different settings of lower limb joints effect the activity and timing of mm. vasti and ischiocrural muscles. In the next part of the research muscle involvement was compared between the control group of healthy subjects and the group of people after plastic surgery of the anterior cruciate ligament. The results indicated some interesting trends, particularly in the timing of muscles. Some of the main outcomes of this work are the demonstration of the positive effect of exercise in closed kinematic chains for optimal muscle involvement of thigh muscles and the verification of this type of exercise substantiation in rehabilitation program of soft knee injury.

Keywords

Surface electromyography, m. vastus medialis, m. vastus lateralis, knee joint, anterior cruciate ligament